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ABSTRACT

The Occupational Analysis of the Training in Industry project was designed to provide valid and reliable information on the work of trainers. To structure the research, the Task Inventory/Comprehensive Occupational Data Analysis Programs (CODAP) method of analysis was used. A central feature of this methodology was the development and use of a work of trainers task inventory in which training and development personnel were asked to indicate which training tasks they perform in their work, indicate the relative time they spend on each task, and provide relevant personal and organizational background information. The inventory contained 5 roles and 14 duties under which 131 tasks were organized. CODAP computer programs were used to organized. CODAP computer programs were used to compile composite job descriptions of the whole sample of trainers and selected subgroups in two forms: the duty job description and the task job description. A job clustering program was used to identify and describe the variety of job types existing within the training and development occupations. Six job types were identified. Three were classified at the managerial level, and three were classified at the officer or nonmanagerial level. A career path was identified, and the responsibilities and prerequisite job experience at each level were determined. (YLB)

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JOB RELEVANT PROGRAMS AND CAREER STRUCTURES FOR TRAINING AND DEVELOPMENT PERSONNEL

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SUMMARY OF THE PROJECT

The OCCUPATIONAL ANALYSIS OF TRAINING IN INDUSTRY project was designed to provide valid and reliable information on the work of trainers. This information is essential for the effective design and evaluation of education programs for training and development personnel in industry at all levels of the career structure.

The CODAP Task Inventory methodology was used to structure the research. A central feature of the Task Inventory methodology was the development and use of a WORK OF TRAINERS TASK INVENTORY in which training and development personnel were asked to :

- indicate which training tasks they perform in their work;
- indicate the relative time they spend on each of these tasks;
- provide relevant personal and organisational background information.

The Task Inventory method was selected as it provides valid and reliable information for the evaluation of existing programs, the design of changes to these programs and the monitoring of the effects of the changes. It also provides designers of career ladders for training and development personnel with accurate and detailed job profiles for each level of responsibility in this occupation.

RATIONALE

Occupational analysts approach the question of curriculum design firstly by identifying duties and tasks performed by members of the occupational group. This type of training design requires the use of a clustering process to identify the JOB TYPES (groups) which exist within the occupation. It also requires that the DUTIES and TASKS performed by the members of each job group be identified and that the relative amount of time spent by each group be used to create detailed duty and task profiles for them.

The Task Inventory approach also provides information which can be used as a basis for answering two important curriculum planning questions :

- Which duties and tasks should be included in programs for educating training and development personnel, and which should be taught on-the-job ?
- Which levels of formal training (pre-employment or advanced) are appropriate for training and development personnel ?

GENERAL OBJECTIVES OF THE PROJECT

The objectives of the research project are outlined below:

1 Compile a bibliography of studies describing and analysing the work of training and development personnel.

2 Search the bibliography to identify research on the nature of the work performed by training and development personnel. In particular to establish if an empirical basis for an accurate job description of training already exists which can be used as framework for this study.

3 Survey the work of training and development personnel.

4 Describe the range of tasks performed by individuals and groups of trainers in a variety of work situations. The task descriptions, derived from an analysis of the inventories, were needed in order to compile duty and task profiles of the entire group in the sample.

5 Group the trainers according to the SIMILARITY of their responses in the Work of Trainers Task Inventory. It is important to note that cluster analysis techniques were used to identify groupings of trainers, rather than arbitrary notions being imposed on the data.

6 Create detailed duty and task job profiles for each of the groups identified by the clustering process.

7 Compare the job profiles of the various groups by identifying the duties and tasks which differentiate one group from the other. The detailed and quantitative nature of the job profiles of selected groups enables these differences to be stated with the clarity and precision needed by course developers and training managers. The tasks which are common to most training and development personnel were identified, thus providing information for the design of both core and specialised training curricula.

7 Identify the range of personal and organisational information which would enhance the duty and task job profiles. The CODAP computer programs provided extremely detailed printouts on each anonymous individual in the survey, which allowed the researcher to provide precise quantitative information on a variety of background variables for each job group.

8 Use the list of primary duty and task descriptors for each job type to validate the existing job titles used in the training and development occupation.

SPECIFIC OBJECTIVES

The specific objectives of this survey of the work of trainers in industry were to:

1 Identify and validate the duties and tasks performed by trainers and developers in industry.

2 Ascertain the relative percentage of work time spent on these duties and tasks by training and development personnel.

3 Identify the job-types which exist within the training and development occupation.

4 Identify the duties and tasks performed by each job-type, and the relative percentage of time spent on each duty and task.

5 Identify the duties and tasks which differentiate one job-type from another.

6 Validate existing job titles existing in the training and development occupation or suggest alternative titles derived from the primary job identifiers in the duty and task descriptions.

7 Provide material for the evaluation of programs for the training and education of training personnel.

8 Provide material for the validation of job specifications in the training and development occupation.

The Nature of Occupational Analysis

Occupational analysis is a methodology for improving the use of manpower through the acquisition and analysis of job-related data. The particular type of occupational analysis methodology used is the TIME-ORDERED, TASK INVENTORY, SURVEY system. The essential features of the task inventory approach to occupational analysis are :

1. The construction of a task inventory which lists all significant tasks performed by the people working in the given occupational area.

2. The administration of the inventory so that individual people in the industry can report which tasks they perform and the relative time they spend on each task.

3. The processing of the inventory responses using the CODAP (Comprehensive Occupational Data Analysis Programs) to identify tasks performed, the relative per cent time spent on each and the clustering of respondents to distinguish job-types within the occupation.

4. The analysis of CODAP printouts to identify the similarities and differences among the selected job-types.

Occupational analysis is used to provide detailed and reliable information about the work of trainers. This information can be used by manpower, personnel and training departments for a variety of purposes. These include, the design and evaluation of programs of training for the trainers themselves, and the development and validation of job specifications for trainers in various industries and at different levels of responsibilty.

APPLICATION OF THE TASK INVENTORY/CODAP METHOD OF OCCUPATIONAL ANALYSIS

The WORK OF TRAINERS TASK INVENTORY was designed to list the range of duties and tasks performed by all personnel in the training and development profession. The inventory enabled the individual members of the occupation to provide three types of information about his own job.

Which of the tasks in the inventory are part of his present job ?

What is the relative amount of time he spends on each task ?

Background information which the sponsors of the survey would wish to know. e.g. salary, age, experience, education, attitudes to the job and so on.

The most critical element in this form of occupational analysis is the use of the set of Comprehensive Occupational Data Analysis Programs (CODAP) which can be used by the occupational analyst in a variety of ways. For example, by using the relative time spent ratings provided by the respondents to the survey, it is possible to identify and describe a unique task profile for each individual, a group of individuals, or the entire occupational group in the survey.

The varied uses of these job descriptions include the creation of precise job specifications and the design and evaluation of courses of training for the occupation. Since it is possible to create job descriptions for groups at different levels within the occupation, the curriculum planner can have precise information for the design of both pre-service and in-service programs.

Among the advantages of the Task Inventory/CODAP approach are that:

The inventory requires recognition, rather than recall, on the part of the person;

The inventory can be administered to very large groups.

The responses can be stored, manipulated and analysed by computer;

The inventory relies on getting the occupational information from the job incumbent who is closest to the work which is being described.

A more detailed explanation of the nature and operation of the Task Inventory/ CODAP methodolgy may be found in Christal (1974) and Moore (1976).

STRUCTURE OF THE "WORK OF TRAINERS TASK INVENTORY"

The Work of Trainers Task Inventory was constructed to cover all areas and levels of the work of people involved in the training and development occupation.. It included the training and development work performed, from the instructor level through to senior management training level. The inventory enabled a respondent to indicate all the tasks which he performed, including those which may have been above or below his level of responsibility.

The Inventory contains five roles and fourteen duties. The 131 tasks in the inventory are organised under these headings. The list of roles and duties is shown in Figure 1.

SUMMARY OF TRAINING AND DEVELOPMENT ROLES

I. PLANNING AND PREPARATION -INDIVIDUAL TRAINING AND DEVELOPMENT PROGRAM

- A. ANALYZE TRAINING NEEDS
- B. DETERMINE APPROPRIATE TRAINING APPROACH
- C. DESIGN AND DEVELOP A TRAINING PROGRAM
- D. PREPARE INSTRUCTIONAL MATERIALS
- E. TRAIN AND EVALUATE TRAINERS
- F. MANAGE EXTERNAL TRAINING PEOPLE AND MATERIALS
- G. ADVISE AND COUNSEL EMPLOYEES ON TRAINING AND DEVELOPMENT
- H. ASSIST MANAGERS AND OTHERS WITH PERFORMANCE PROBLEMS AND ON-THE-JOB TRAINING

II. IMPLEMENTATION - INDIVIDUAL TRAINING AND DEVELOPMENT PROGRAM

- I. CONDUCT CLASSROOM TRAINING
- J. USE VARIED TECHNIQUES FOR INFLUENCING BEHAVIOUR IN GROUPSAND THE ORGANISATION

III. RESEARCH - ALL TRAINING AND DEVELOPMENT PROGRAMS

- K. CONDUCT RESEARCH ON TRAINING AND DEVELOPMENT

IV. MANAGING - ALL TRAINING AND DEVELOPMENT PROGRAMS

- L. ESTABLISH AND MAINTAIN WORKING RELATIONSHIPS WITH MANAGERS
- M. MANAGE THE TRAINING AND DEVELOPMENT PROCESS

V. PROFESSIONAL SELF-DEVELOPMENT

- N. KEEP WELL INFORMED ON CHANGES IN TRAINING AND DEVELOPMENT

A. ANALYSE TRAINING NEEDS

In this role training and development professionals

- construct questionnaires for needs analysis
- conduct interviews for needs analysis
- evaluate training programs

Card No. 2

Task No.	TASK TITLE	P	Time Spent 1 = a very little amount of time 9 = a very large amount of time	Office Use Only
A-1	Construct questionnaires for analysis of training and development needs A-1		1 2 3 4 5 6 7 8 9	11
A-2	Construct questionnaires for evaluating training and development programs and materials A-2		1 2 3 4 5 6 7 8 9	12
A-3	Use surveys or questionnaires to identify training and development needs A-3		1 2 3 4 5 6 7 8 9	13
A-4	Conduct interviews or informal discussions to identify training needs A-4		1 2 3 4 5 6 7 8 9	14
A-5	Make inspections to identify on-the-job training needs A-5		1 2 3 4 5 6 7 8 9	15
A-6	Identify the causes of high failure or excessive on-the-job training time A-6		1 2 3 4 5 6 7 8 9	16
A-7	Evaluate supervisors of on-the-job training programs A-7		1 2 3 4 5 6 7 8 9	17
A-8	Evaluate on-the-job training programs A-8		1 2 3 4 5 6 7 8 9	18
A-9	Evaluate reports on on-the-job training programs A-9		1 2 3 4 5 6 7 8 9	19
A-10	Evaluate requests for training services A-10		1 2 3 4 5 6 7 8 9	20
Please write in any tasks which you perform but are not listed in this role.				

INVENTORY CONTINUED ON NEXT PAGE

ORGANISATION OF THE FIVE ROLES OF TRAINERS

The first two roles were arranged in a natural sequence: first, 'PLANNING AND PREPARATION', followed by 'IMPLEMENTATION OF THE PLAN'. These two roles are relevant to the majority of training and development personnel.

The third and fourth roles, 'RESEARCH' and 'MANAGEMENT' concern a smaller proportion of the occupational group.

The fifth role, 'KEEP WELL INFORMED', applies to all personnel.

Organisation of the Fourteen Duties

The fourteen duties were grouped under the five role headings to provide the respondents to the survey with an overview of the training and development occupation. By reading this chart respondents were able to have some confidence that the complexities and variety of the occupation were being addressed.

The 131 tasks which were derived from the literature and discussions with training and development personnel were distributed under the headings of the fourteen duties. A sample page from the Task Inventory is displayed in Figure 2.

B. DETERMINE APPROPRIATE TRAINING APPROACH

In this role training and development professionals

- evaluate the alternatives of 'ready-made' courses or materials, programmed instruction, videotape and other techniques
- versus a more process-oriented organisation development and team building approach.

Card No. 2

Task No.	TASK TITLE	P	Time Spent 1 = a very little amount of time 9 = a very large amount of time	Office Use Only
B-11	Determine suitability of 'ready-made' courses and materials B-11		1 2 3 4 5 6 7 8 9	21
B-12	Determine suitability of video tape and/or closed circuit TV techniques B-12		1 2 3 4 5 6 7 8 9	22
B-13	Determine suitability of various instructional techniques, e.g. role-play, demonstration, lecture B-13		1 2 3 4 5 6 7 8 9	23
B-14	Determine suitability of organisation development techniques, e.g. team-building, inter-group meetings B-14		1 2 3 4 5 6 7 8 9	24

Please write in any tasks which you perform but are not listed in this role.

INVENTORY CONTINUED ON NEXT PAGE

C. DESIGN AND DEVELOP TRAINING PROGRAMS

In this role trainng and development personnel

- design training programs to meet needs
- select objectives for the program
- select and organise the topics (content) of the program
- select the appropriate techniques for instruction
- select or design the appropriate learning activities
- select the appropriate resources for training
- select or design the appropriate procedures for evaluating program.

Card

Task No.	TASK TITLE	P	Time Spent 1 = a very little amount of time 9 = a very large amount of time	Of U O
C-15	Decide whether existing programs, course outlines, lesson plans will satisfy the training needs C-15		1 2 3 4 5 6 7 8 9	
C-16	Design specific programs to satisfy training needs C-16		1 2 3 4 5 6 7 8 9	
C-17	Apply adult learning theory and instructional techniques when designing training and development programs C-17		1 2 3 4 5 6 7 8 9	
C-18	Apply concepts of human development and growth when designing training and development programs C-18		1 2 3 4 5 6 7 8 9	
C-19	Establish precise objectives for training programs C-19		1 2 3 4 5 6 7 8 9	
C-20	Determine appropriate sequences of courses or programs, e.g. pre-requisites, curricula C-20		1 2 3 4 5 6 7 8 9	
C-21	Determine structure of training program, e.g. length, number of participants, choice of techniques, organisation of seating C-21		1 2 3 4 5 6 7 8 9	
C-22	Select and sequence the topics in training programs C-22		1 2 3 4 5 6 7 8 9	
C-23	Select appropriate resources and materials for training programs C-23		1 2 3 4 5 6 7 8 9	

INVENTORY CONTINUED ON NEXT

Each duty heading starts on a new page. Under each duty there is a definition of that duty. It proved to be a particularly difficult exercise to ensure that the tasks under the duty were really subsumed by the duty title and definition. Both the title and definition went through many redraftings. The task list was arranged in this form so that the tasks could further clarify the meanings of the duties and the reader could see each task in context.

The goal of providing an overview of the training and development occupation was achieved for many of the respondents who wrote on the survey form that they found the survey document easy to understand, comprehensive and a convincing overview of the occupation.

REASONS FOR USING THE RELATIVE TIME SPENT SCALE

Before explaining the reasons for using the concept of the relative time spent on work tasks as the basis for creating an accurate job description, it is necessary to state why the two popular methods of 'absolute time values' and 'frequency' were not used.

With 'absolute time values' the respondents are invited to estimate in hours and minutes, or percentages, the amount of time they spend on each task. This system broke down when analysts found that the number of hours exceeded the longest possible working week, or the percentage when summed, greatly exceeded 100 per cent of the working week. It is essential that it be understood that this survey is NOT using 'absolute time values'.

The second technique which is often advocated for analysing jobs is to estimate or count the frequency of performance of each task. This technique was found to provide information which was hard to handle and interpret effectively. A number of the surveys of trainers listed in the bibliography used the 'frequency of performance' technique. In each case they had data which they could not interpret in a convincing manner as the inferences of the writers could have been contradicted by an equally plausible set of counter inferences from the same data.

The 'relative time spent' rating scale is used because it provides reliable information. Test-retest studies provide reliability coefficients in the high '70s (Moore, 1974). Interviews with job incumbents and their supervisors have also been used to confirm the reliability of the 'relative time spent' ratings.

The task inventory data can be analysed with correlational, cluster analysis and cross tabulational techniques because of the development of the concept of 'relative time spent'.

For a thorough discussion of the rationale, validity and varied uses of the 'relative time spent' concept see Christal(1974) and Moore(1976).

DUTY JOB DESCRIPTION OF ALL TRAINERS IN THE SAMPLE

The CODAP computer programs were used to compile composite job descriptions of the whole sample of trainers and selected sub-groups. These job descriptions were prepared in two forms, the Duty Job Description and the Task Job Description.

The Duty Job Description of the entire sample of 344 training and development personnel is displayed in Figure 3.

JOB DESCRIPTION - ALL MEMBERS SURVEYED IN WORK OF TRAINERS IN INDUSTRY STUDY

Sorting: Output is sorted on column 3 Sort is descending

Suppression: Print suppression on column 3 Not printed if value LT .0010

	Duties	ALL-RESP Prct Perf	ALL-RESP %Tme Perf	ALL-RESP %Tme All ****	Cum <---	Sec
I	CONDUCT CLASSROOM TRAINING	95.64	23.80	22.76	22.8	1
C	DESIGN AND DEVELOP TRAINING PROGRAMS	98.55	17.19	16.94	39.7	2
M	MANAGE THE TRAINING AND DEVELOPMENT PROCESS	93.90	7.74	7.27	47.0	3
J	USE VARIED TECHNIQUES FOR INFLUENCING BEHAVIOUR IN GROUPS AND THE ORGANIZATION	92.44	6.74	6.23	53.2	4
K	CONDUCT AND REPORT RESEARCH ON TRAINING AND DEVELOPMENT	93.90	6.57	6.17	59.4	5
D	PREPARE INSTRUCTIONAL MATERIALS	95.35	6.16	5.88	65.2	6
A	ANALYSE TRAINING NEEDS	97.67	5.80	5.66	70.9	7
N	KEEP WELL INFORMED ON CHANGES IN TRAINING AND DEVELOPMENT	98.84	4.84	4.78	75.7	8
G	COUNSEL AND ADVISE EMPLOYEES ON TRAINING AND DEVELOPMENT	93.60	5.05	4.73	80.4	9
H	ASSIST MANAGERS AND OTHERS WITH JOB PERFORMANCE PROBLEMS AND ON-THE-JOB TRAINING	91.86	5.14	4.72	85.1	10
L	ESTABLISH AND MAINTAIN WORKING RELATIONSHIPS WITH MANAGERS	94.19	4.73	4.46	89.6	11
F	MANAGE EXTERNAL TRAINING PEOPLE AND MATERIALS	92.15	4.62	4.26	93.9	12
E	TRAIN AND EVALUATE TRAINERS	92.15	3.46	3.18	97.0	13
B	DETERMINE APPROPRIATE TRAINING APPROACH	97.09	3.05	2.96	100.0	14

The first column of numbers is headed 'ALL - RESP Prct Perf'. The numbers below the heading represent the percentage of the entire group of respondents who performed the duty. For example, Duty I - CONDUCT CLASSROOM TRAINING, was performed by 95.64% of the total sample of trainers in the survey. It can be seen that all of the duties are performed by more than 90% of the group.

Column 2 indicates the percentage of time spent on this duty by the members of the group performing the task. For example, 23.8% of the work time of those members performing the duty, is spent on Duty I. The next most time-consuming is Duty C - DESIGN AND DEVELOP TRAINING PROGRAMS, which takes up 17.19% of the time.

Column 3 is headed 'ALL - RESP % Tme ALL'. This means that the numbers below describe all members of the survey group, and that they also indicate the per cent time spent by all members of the group. In this column the time spent rating is averaged over the whole group including those who did not perform the duty. Therefore the time spent rating for Duty I is slightly lower at 22.76%.

Column 4 provides a cumulative total of the percent time spent ratings from column 3. Note that the rating in Column 4 are rounded off to one decimal place. i.e. 22.76 is rounded off to 22.8 and 16.94 is rounded off to 16.9, to give 39.7% as the cumulative total for the time spent on these two duties.

Column 5, headed 'Seq', is useful for reading the number of duties taking up a selected percentage of time spent. For example, it is common practice to identify those duties which take up aproximately 25%, 50% and 75% of the group's work time. Duty I alone fits into the 25% category with 22.76%, while duties C and M bring the time spent upto the second category of 50%. In other words, the following three duties take up to 47% of the work time of the training personnel in the survey :

Figure 4: THREE TOP DUTIES OF TRAINERS

	DUTIES	RESP %Tme ALL	Cum
I	CONDUCT CLASSROOM TRAINING	22.76	22.8
C	DESIGN AND DEVELOP TRAINING PROGRAM	16.94	39.7
M	MANAGE THE TRAINING AND DEVELOPMENT PROCESS.	7.27	47.0

Conversely the remaining 11 duties take up 53% of the work time spent by the group.

TASK JOB DESCRIPTION OF ALL TRAINERS IN THE SURVEY

Task job descriptions are designed to provide a more detailed job profile. Instead of being limited to the 14 duties, the task job description provides a job profile containing all or many of the 131 tasks from the survey document. An example of a TASK JOB DESCRIPTION is shown in Figure 5.

JOB DESCRIPTION - ALL MEMBERS SURVEYED IN WORK OF TRAINERS IN INDUSTRY STUDY

Sorting: Output is sorted on column 3 Sort is descending

Suppression: Print suppression on column 3 Not printed if value LT .0010

	Tasks	ALL-RESP Prct Perf	ALL-RESP %Time Perf	ALL-RESP %Tme All ****	Cum <---	Seq
C-15	Design specific programs to satisfy training needs	94.19	1.427	1.344	1.34	1
L-114	Establish and maintain good working relationships with managers as clients	88.08	1.491	1.313	2.66	2
C-19	Establish precise objectives for training programs	92.15	1.413	1.302	3.96	3
I-92	Speak to the group clearly and effectively	89.24	1.415	1.263	5.22	4
C-23	Select appropriate resources and materials for training programs	94.19	1.339	1.261	6.48	5
I-70	Conduct training programs	92.73	1.356	1.257	7.74	6
N-128	Read the literature on training and development	88.26	1.259	1.237	8.98	7
I-87	Foster a group climate which encourages participation in the learning process	88.95	1.379	1.227	10.20	8
L-116	Advise managers and supervisors on training and development	90.12	1.317	1.187	11.39	9
C-25	Design or select activities so that participants will learn effectively	91.28	1.292	1.179	12.57	10
C-21	Determine structure of training program, e.g. length, number of participants, choice of techniques, organisation of seating	92.15	1.271	1.172	13.74	11
I-82	Present instructional materials in an appropriate manner	87.79	1.329	1.167	14.91	12
I-81	Give clear explanations	86.92	1.338	1.163	16.07	13
I-84	Initiate and sustain discussions	88.08	1.316	1.159	17.23	14
I-74	Conduct discussions	90.70	1.297	1.177	18.34	15
I-83	Formulate key questions to promote discussions	87.21	1.267	1.105	19.44	16
I-91	Present clearly written instructional materials	86.63	1.271	1.101	20.54	17
C-26	Select appropriate instructional materials	90.41	1.212	1.096	21.64	18
I-90	Use a variety of class management skills	86.05	1.166	1.090	22.73	19
I-85	Ask clear and precise questions	86.34	1.266	1.056	23.82	20
C-22	Select and sequence topics in training programs	88.08	1.229	1.082	24.90	21
C-17	Apply adult learning theory and instructional techniques when designing training and development programs	95.47	1.266	1.08[illegible]	25.96	22
I-80	Demonstrate clearly to enable participants to be actively involved in learning	84.59	1.268	1.073	27.05	23
J-97	Use discussion techniques	84.59	1.263	1.068	28.12	24
L-117	Explain training recommendations to managers to gain their acceptance	83.72	1.245	1.043	29.16	25
I-89	Change instructional procedures when participants do not understand	86.05	1.199	1.032	30.20	26
I-79	Present activities which suit the participants' needs and interests	84.59	1.218	1.031	31.23	27
M-118	Prepare and present plans for training and development programs	85.47	1.204	1.029	32.25	28
C-16	Decide whether existing programs, course outlines, lesson plans will satisfy the training needs	91.28	1.115	1.018	33.27	29

The tasks in Figure 5 are arranged in descending order from the most to the least time-consuming. At the top of the list with 1.34% of time spent is Task C-16 Design specific programs to satisfy training needs, while at the end of the list is Task D-37 Prepare computer-assisted instruction materials.

By reading Columns 4 (Cum) and 5 (Seq) the number of tasks taking up 25%, 50% and 75% can be read as 21, 47 and 81 respectively.

The value of the more precise job profile can be seen when reading the task identification numbers which precede the task titles. In the Duty Job Description we saw that Duty I took up 22.76% of the time of the group, and was the most time-consuming duty. However if we look at the 21 tasks which take up the top 25% of time spent by the group, we find that the tasks are distributed as follows :

Figure 6: NUMBER OF TASKS FROM EACH DUTY IN THE TOP 25% OF TIME SPENT

Identification Word for Duty	No. of tasks from Duty
I - INSTRUCT	11
C - DESIGN	7
M - MANAGE	2
J - INFLUENCE	1

Duty I - INSTRUCT is represented by 11 out of 21 tasks, while Duty C - DESIGN, which was the second most time-consuming with 15.94%, is represented by 7 tasks. Duty L - MANAGE EXTERNAL TRAINING PEOPLE, which was number 11 in the sequence of duties with 4.46% of the time spent, was represented by tasks I - 114 and I - 116 which are second and ninth respectively in the 131 task sequence.

BACKGROUND CHARACTERISTICS OF THE RESPONDENTS TO THE SURVEY

Survey documents were completed by 344 trainers across Australia. The mass of background information has been organised under some of the questions which were asked in the background section of the survey. This material is presented in detail in the full report of the project entitled:

JOB PROFILES OF TRAINERS:
An Occupational Analysis of Training in Industry

The report is available from the National Training Council in Canberra.

EXPLANATION OF THE JOB CLUSTERING PROGRAM

The key computer programs in the Comprehensive Occupational Data Analysis Programs (CODAP) are those which are used to IDENTIFY AND DESCRIBE the variety of JOB-TYPES existing within the training and development occupation.

The job clustering program was used to compare the detailed TASK-LEVEL JOB DESCRIPTION of each person who responded to the WORK OF TRAINERS SURVEY. In the first stage the program located the two most similar of the task level job descriptions.

Similarity is measured very precisely as the percentage overlap in the job descriptions.

Two respondents are formed into a single cluster with a consolidated job description; i.e. the time-spent ratings for each task in the inventory, as rated separately by Respondents A and B, are now combined. In the unlikely event of two respondents having an identical pattern of task ratings, then the overlap between the two job descriptions would be 100 per cent.

ANALYSIS OF DIAGRAM PRINTOUT

The information from the clustering programs was used by the DIAGRAM program to produce a tree-like diagram which graphically displays the results of the grouping process. Each rectangular block of data in the diagram represents a group formed by the clustering process and key information about that group. An extract from the DIAGRAM printout is shown in Figure 7.

Figure 7 - EXTRACT FROM DIAGRAM PRINTOUT

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0082 0007
0243-0249
60.4 67.2
    .
    .
                0085 0010
                0250-0259
              . 60.9 66.7
                .
  .                   . .
  .
  .         0080 0017       .
  .         0243-0259 .........
            59.8 63.5       .
              .
  ..................
                .
                .
                .
            0068 0019
            0243-0261
            57.7 62.6
                .
                .
                .
                .
                .
0061 0261       .
0061-0261 .........
56.8 66.5
```

Each block of data has five pieces of numerical information. One block from the above extract is interpreted as follows :

0080 is the GROUP NUMBER and the STAGE at which the group was formed by merging the two smaller groups 0082 and 0085.

0017 is the number of trainers in this group. This number was made by clustering the two groups of 7 and 10 members form Groups 80 and 85 respectively.

0243-0259 is the range of KPATH NUMBERS which were allotted to each respondent, according to their similarity, by the clustering process. KPATH numbers 0243-0244 in this group indicate that these two trainers have very similar job descriptions.

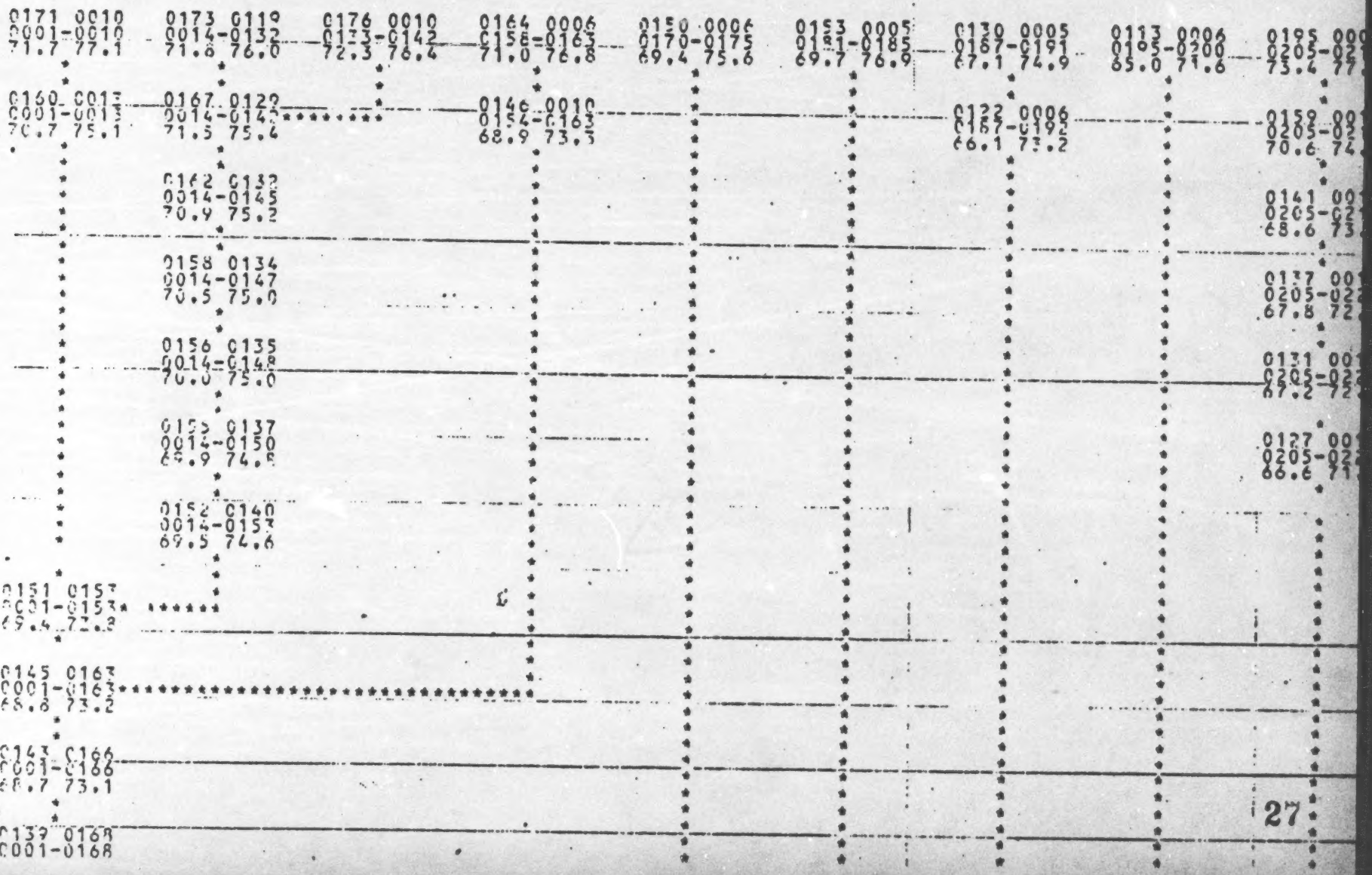
59.8 is the BETWEEN OVERLAP INDEX. This is the average percentage of overlap 'between' all possible pairings of the members of group 0082 with group 0085.

63.5 is the WITHIN OVERLAP INDEX. This index is the average percentage of overlap 'within' all possible pairs of individuals within the combined group. (Group 0080). Therefore the within overlap is the average of the 17 pairs of overlap as computed by the OVERLAP PROGRAM.

A page from the DIAGRAM computer printout is shown in Figure 8.

COLUMN 1

WORK OF TRAINERS IN INDUSTRY
X = 71.66 Y = 20.00 W = 5 N/V = 171 NSTAGE = 343



Column 1 is the "trunk" of the tree diagram. Group 171 with 10 members is at the top of this column. The members are numbered 1 to 10 in the KPATH sequence and they have a 75.1% similarity index.
At the bottom of this column on the fifth page of the DIAGRAM printout is Group 1 with 344 members. The members are numbered 1 to 344 on the KPATH sequence. Their job similarity index is 56%.

The merging process can be seen in Column 2 where Group 152 merges with group 160 to form Group 151. The numbers of members in these groups are 140, 13 and 153 respectively. This means that about 45% of the sample of 344 has merged into a group in which the members have a high degree of similarity in their jobs. This is measured by the overlap index of 73.8% among the members of Group 151.

The members of Group 152 had an overlap index within the group of of 74.6%, while Group 160 had an overlap index of 75.1.

The KPATH sequence numbers list the the individual members of each group according to their similarity.

The similarity information for these three groups is summarised in Figure 9.

Figure 9: SIMILARITY OF GROUPS 152, 160 AND 153

Group Number	No. of people in the group	Overlap Index within the group	KPATH Sequence Numbers
152	140	74.6%	10-153
160	13	75.1	1- 13
153	153	73.8%	1-153

Respondents 1 and 2 are most similar to each other, as are any other pairs such as 14 and 16, or 152 and 153. On the other hand, the further apart the KPATH numbers are, the greater the difference in their job descriptions. In this case respondent 1 and respondent 153 are the least similar pair in Group 153.

USE OF CLUSTERING PROCESS TO IDENTIFY JOB TYPES

The JOB TYPES DIAGRAM in Figure 10 below presents a clearer outline of the results of the clustering process. First, it reverses the presentation by placing Group 1, which includes all the respondents to the survey, at the top of the diagram.

Secondly, it can be seen that the five large groups from Group 151 to Group 30, are in the mainstream. The duties which take up the top 50% of time spent by these groups are:

DUTY I - INSTRUCT
DUTY C - DESIGN PROGRAMS

with DUTY H - MANAGE, as the third major duty for two of the groups, and DUTY J - INFLUENCE ,for Groups 151, 110, 91 and 45.

Thirdly, the eight smaller groups at the bottom of the diagram were formed at different stages in the clustering process, and merged into the mainstream at different stages. Group 127 merged into the mainstream before the other seven, while Group 5 was last to merge. The duties which take up the top 50% of time spent for each group are listed in the diagram.

Fourthly, Group 151 has the highest overlap or similarity index of the mainstream groups, with 73.8%, making it a very homogeneous group. Group 127 is the most homogeneous of the non-mainstream groups, with an overlap of 71.6%. Group 1 has an overlap index of 56.0%, while Group 5 has a lower index of 40.2%.

Group 1 is too heterogeneous to be considered a separate job type as the overlap between the groups which merged to create Group 1 was only 14.7%. Group 5 on the other hand still had a between group overlap of 31.0%.

Archer (1966) recommends an empirically determined rule of thumb when deciding which of any groups form a distinctive job type. His recommendation is 50% or more for the WITHIN GROUP OVERLAP and 35% for the BETWEEN GROUP OVERLAP. However he cautions that these indicators should be used tentatively and checked against other information, such as background characteristics of the group. For these reasons all eight of the non-mainstream groups were selected as potentially significant job types,

In the following discussion it will be seen how these eight non-mainstream groups were merged into five significant job types, while Group 110 was selected as the most significant mainstream job type.

Figure 10: JOB-TYPES DIAGRAM

```
--------
GRP 1     INSTRUCT
N=344     DESIGN
OV=56.0   MANAGE
1-344
--------

--------
GRP 30    INSTRUCT
N=296     DESIGN
OV=63.3   MANAGE
1-296
--------

--------
GRP 65    INSTRUCT
N=242     DESIGN
OV=68.1   INFLUENCE
1-242
--------

--------
GRP 91    INSTRUCT
N=230     DESIGN
OV=69.1   INFLUENCE
1-230
--------

--------
GRP 110   INSTRUCT
N=200     DESIGN
70.9      INFLUENCE
1-200
--------

--------
GRP 151   INSTRUCT
N=153     DESIGN
OV=73.8   INFLUENCE
1-153
--------
```

GRP 127	GRP 68	GRP 56	GRP 63	GRP 28	GRP 23	GRP 12	GRP 5
N=19	N=19	N=5	N=6	N=10	N=9	N=5	N=14
OV=71.6	OV=60.3	OV=60.4	OV=63.0	OV=57.4	OV=53.1	OV=53.0	OV=40.2
DESIGN	INSTRUCT	INSTRUCT	INSTRUCT	RESEARCH	INSTRUCT	DESIGN	MANAGE
INSTRUCT	DESIGN	DESIGN		MANAGE		PREPARE	INFORMED
MANAGE				DESIGN			MANAGE/EXT
RESEARCH				ANALYSE			RESEARCH
MANAGE/EXT							

PRIMARY JOB IDENTIFIERS USED IN SELECTING JOB GROUPS

The process of using the primary duties and tasks of each job group to find the most appropriate job title was based on the information which is summarised in Figure 11 below.

Figure 11: BASIS FOR SELECTING RECOMMENDED JOB TITLES FOR THE SIX JOB TYPES

RECOMMENDED JOB TITLE:
STAFF DEVELOPMENT INSTRUCTOR
JOB GROUP NUMBERS:
43 & 23
DUTIES ON WHICH TOP 25% OF TIME SPENT:
INSTRUCT
DUTIES ON WHICH SECOND 25% OF TIME SPENT:
INSTRUCT
BASIS FOR SELECTION OF RECOMMENDED JOB TITLE:
This job group is responsible for classroom instruction but not for the design of the training and development program.

RECOMMENDED JOB TITLE:
STAFF DEVELOPMENT PROGRAMS OFFICER
JOB GROUP NUMBERS:
48 & 56
DUTIES ON WHICH TOP 25% OF TIME SPENT:
INSTRUCT
DUTIES ON WHICH SECOND 25% OF TIME SPENT:
DESIGN

BASIS FOR SELECTION OF RECOMMENDED JOB TITLE:
The members of this job group both instruct and design training programs.

RECOMMENDED JOB TITLE:
STAFF DEVELOPMENT OFFICER
JOB GROUP NUMBERS:
48, 56 & 110
DUTIES ON WHICH TOP 25% OF TIME SPENT:
INSTRUCT
DUTIES ON WHICH SECOND 25% OF TIME SPENT:
DESIGN

BASIS FOR SELECTION OF RECOMMENDED JOB TITLE:
The terms, instruction and design, should be included in any job description for this job type. However these terms have been omitted from the title in the interests of brevity.

RECOMMENDED JOB TITLE:
STAFF DEVELOPMENT PROGRAM MANAGER
JOB GROUP NUMBERS:
127
DUTIES ON WHICH TOP 25% OF TIME SPENT:
DESIGN & INSTRUCT

DUTIES ON WHICH SECOND 25% OF TIME SPENT:
MANAGE INTERNAL & EXTERNAL PROGRAMS; RESEARCH

BASIS FOR SELECTION OF RECOMMENDED JOB TITLE:
The members of this group have mainly program design and managerial duties.

RECOMMENDED JOB TITLE:
STAFF DEVELOPMENT RESEARCH MANAGER
JOB GROUP NUMBERS:
28
DUTIES ON WHICH TOP 25% OF TIME SPENT:
RESEARCH & MANAGE INTERNAL PROGRAMS
DUTIES ON WHICH SECOND 25% OF TIME SPENT:
DESIGN PROGRAMS & ANALYSE TRAINING NEEDS

BASIS FOR SELECTION OF RECOMMENDED JOB TITLE:
This management group has clear responsibility for research and the allied duties of design and analysis.

RECOMMENDED JOB TITLE:
STAFF DEVELOPMENT MANAGER
JOB GROUP NUMBERS:
5
DUTIES ON WHICH TOP 25% OF TIME SPENT:
MANAGE INTERNAL PROGRAMS & KEEP WELL-INFORMED
DUTIES ON WHICH SECOND 25% OF TIME SPENT:
MANAGE EXTERNAL PROGRAMS & RESEARCH
BASIS FOR SELECTION OF RECOMMENDED JOB TITLE:
The members of this group are responsible for the management of both internal and external programs, and through keeping well-informed and conducting research, are responsible for the work of the other two types of managers.

CREATING A GENERIC JOB TITLE FOR THE TRAINING AND DEVELOPMENT PROFESSION

Although the six job types have been outlined earlier, there was a problem in deciding which generic title encompassed all of them. The eight titles which were used in the survey document were considered an obvious source. These job titles appear in Figure 12.

Figure 12: EIGHT TRAINING AND DEVELOPMENT JOB TITLES USED IN THE SURVEY DOCUMENT

Training Manager

Training Officer

Instructor

Industrial Training Officer

Staff Development Officer

Personnel Officer

Personnel Manager

Consultant

Other (Please specify)

The arguments below show why these titles were found to be inadequate,

In making a decision about the words to use in each job title, several points were taken into consideration. First, it could be demonstrated from this occupational analysis data that the training and development personnel in the sample were a reasonably homogeneous group. The DIAGNAM printout which presents the results of the clustering process showed that there was still a high level of similarity in the job description of the full sample treated as a single group. The "within-group similarity index" was 56.0%.

Second, it was argued that such a high degree of homogeneity justified the concept of a career ladder for training and development personnel. Each person who enters this occupational group should be able to expect that appropriate and successful training and experience at each level would be necessary for promotion to higher levels. Expressed in another way the concept of "officers and other ranks" was inappropriate in this occupation. Although it was assumed that not all would succeed in reaching the highest levels in the profession.

Third, it was seen as desirable to select a word or words which would appear in all six job titles to emphasise the homogeneity of this career group. The word 'trainer' was rejected as it over emphasised the instructional and preparation roles. The words 'training and development' were also rejected since they would have made some of the job titles extremely long and cumbersome.

Fourth, it was seen that three of the groups had substantial managerial responsibilities, while the other three groups did not. This suggested that the word 'manager' should appear in the job title of three of the groups. Conversely this suggested the need for a word which conveyed the non-managerial roles of the other three groups. The word which appeared to be appropriate was 'officer'.

Fifth, the words 'Staff Development' were selected as the first part of all six job titles on the grounds that they clearly refer to people, namely 'staff', and that 'development' can encompass all fourteen of the training and development roles and any subset of these roles. The word 'manpower' which conveys the same concepts is used by the Industry Training Committees in the job titles, Manpower Development Officer and Manpower Development Executive. Therefore the words 'Manpower Development' are a possible alternative generic term for this occupational group.

Sixth, it was found that of the three groups of managers, one spent more time on the research role, the second on the program design and instructional roles, while the third was more involved in the management of internal and external training and development programs. Therefore it seemed appropriate to designate the three managerial groups respectively as :

STAFF DEVELOPMENT RESEARCH MANAGER

STAFF DEVELOPMENT PROGRAMS MANAGER

STAFF DEVELOPMENT GENERAL MANAGER

Seventh, the non-managerial group presented a problem of labelling, in that two of the groups were heavily involved in the instrucional role, while one was only moderately involved. A different pair of groups was heavily involved in the design and preparation of programs, while the third group spent relatively much less time in these roles.

The word 'instructor' was examined as a possible generic term for the three groups, but it was partly incorrect for one group and completely incorrect for another. The word 'officer' appeared appropriate for indicating a person with clear and important responsibilities, but subject to direction from people in managerial positions. This provided the pattern of 'Staff Development (descriptive word) Officer' for all three as an attractive possibility.

One group fitted easily into this pattern. Since the group was heavily involved in the design and preparation of programs and materials, the title of Staff Development Programs Officer appeared to be descriptive and appropriate. It had the additional merit of providing an obvious step in the career ladder towards the position of Staff Development Programs Manager.

The other two titles were more difficult to keep in the pattern. For example, the members of one group spent fifty per cent of their work time in the instructional role. The easy conclusion was to use the single word 'instructor'. This was appealing on the grounds of accuracy, brevity and familiarity. However it was rejected on the grounds that it could have created the impression that this group was completely distinct from the other five groups, and indeed may have had little prospects of career development. Thus the longer title of Staff Development Instructor was selected. The interests of brevity would be served by the fact that in everyday usage these people would be addressed as instructors and would probably answer to the title quite happily. However on the occasions when job titles do matter, such as place on a career ladder, job specifications and salary relativities, then the longer title would be used.

The third officer level group was left without a qualifying adjective. This group had a heavy involvement in both the instructional and design roles. The word 'programs' was rejected because it only covered part of the major responsibilities. The word 'instructor' was also inadequate to delineate the roles. Since it would have been impossibly clumsy to include the words 'instruction and design' in the job title, it was decided to leave the qualifying adjective out of the title of the third group. Therefore they have been designated Staff Development Officers. The job specification would make it clear that both the instructional and design roles were the major part of this job.

The three non-managerial groups were entitled :

STAFF DEVELOPMENT INSTRUCTOR

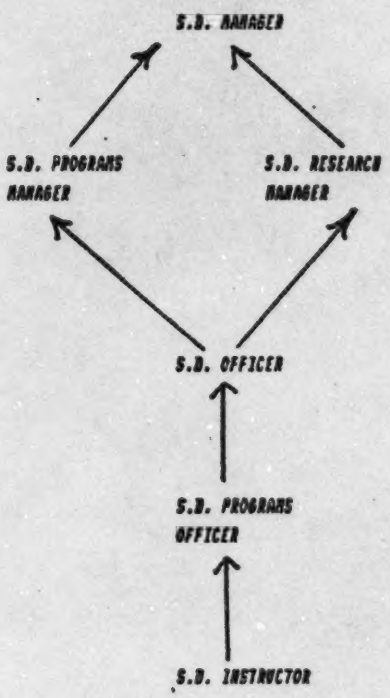
STAFF DEVELOPMENT PROGRAMS OFFICER

STAFF DEVELOPMENT OFFICER

CAREER PATH FOR THE STAFF DEVELOPMENT OCCUPATION

A career path for training and development personnel is presented in Figure 13. Beginners would start as Staff Development Instructors and aspire to become Staff Development Managers at the top of the ladder..

Figure 13: CAREER PATH FOR STAFF DEVELOPMENT PERSONNEL



RESPONSIBILITIES AND PREREQUISITE EXPERIENCE AT EACH LEVEL IN THE CAREER PATH

The model career path is analysed and the main responsibilities and prerequisite job experience are summarised below.

The three Staff Development Officer groups are arranged in a linear fashion in Figure 14 to show the place of each in a hierarchy of positions.

Figure 14: HIERARCHICAL ORDERING OF THREE STAFF DEVELOPMENT OFFICER GROUPS

JOB TITLE	MAIN RESPONSIBILITY	PREREQUISITE JOB EXPERIENCE
S.D.INSTRUCTOR	CLASS INSTRUCTION	NOT APPLICABLE FIRST STEP ON THE LADDER
S.D. PROGRAMS OFFICER	PROGRAM DESIGN & PREPARATION	S.D. INSTRUCTOR
S.D. OFFICER	INSTRUCTION & DESIGN	S.D. INSTRUCTOR & S.D. PROGRAMS OFFICER

The three Staff Development Manager groups are arranged in a more flexible hierarchy in Figure 15.

Figure 15: HIERARCHICAL ORDERING OF THREE S.D. MANAGER GROUPS

JOB TITLE	MAIN RESPONSIBILITY	PREREQUISITE JOB EXPERIENCE
S.D. PROGRAMS MANAGER	MANAGE & DEVELOP PROGRAMS	S.D. PROGRAMS OFFICER S.D. PROGRAMS OFFICER
S.D. RESEARCH	RESEARCH & MANAGE	S.D.PROGRAMS OFFICER
S.D. GENERAL	MANAGE, RESEARCH & DEVELOP PROGRAMS	S.D. PROGRAMS MANAGER & S.D. RESEARCH MANAGER

OVERVIEW

The OCCUPATIONAL ANALYSIS OF TRAINING IN INDUSTRY project was designed to answer a basic question :

> What work DO trainers perform ?

This question was translated into the following research question :

> Which roles, duties and tasks are performed by training and development personnel at all levels ?

This question was addressed to the training and development personnel who actually performed these duties, since occupational analysts assume that the person doing the job, knows best what IS happening on that job.

The basic research instrument for gathering data for the research question was the WORK OF TRAINERS TASK INVENTORY. Training personnel were asked firstly to indicate which of the tasks in the inventory they performed, and secondly, to rate each of the performed tasks on time spent scale.

The analysis provided a quantified description of the roles, duties and tasks performed by training personnel showing the relative share of their work time spent on these tasks. The duty and task job descriptions outlined earlier revealed an occupational group with a considerable degree of homogeneity, as measured by an Overlap Index. The composite picture of all respondents to the survey showed that they spent nearly 50% of their work time on three duties:

Duty I - Conduct classroom training	22.76%
Duty C - Design and develop training programs	16.95%
Duty M - Manage the training and development process	7.27%

Task job descriptions, which are more finely tuned, subsequently reinforced the duty job descriptions.

The two types of occupational data, namely, tasks performed and relative time spent on each, were basic requirements for the clustering process, which arranged the respondents in groups according to the degree of similarity in their responses to these items. Subsequently the groups were arranged in a tree-like diagram which showed how the the various sub-groups were were finally merged into Group 1, which consisted of all the members of the survey.

By a variety of procedures outlined earlier, six main job types were identified. Three types were classified at the

managerial level, and three were classified at the officer or non-managerial level.

The generic title, Staff Development, was recommended, firstly as a replacement for the large number of conflicting job titles which are used at present by training and development personnel. Secondly, it was shown that the six job types could be arranged in a career ladder. It was argued that it was both possible and desirable to create a job title which included the words, Staff Development, to draw attention to the common and sequential core of the work activities of all six job types,

The duty and task profiles for each of the six job types are described at length in the full research report. A particularly useful feature of the analysis were the printouts which identified the duties and tasks which most differentiated the selected groups from each other. Both the job descriptions and the descriptions of differences between pairs of groups were used by the writer as primary job identifiers. That is, they were used to validate the use of the descriptive words in the following job titles:

Staff Development Instructor
Staff Development Program Officer
Staff Development Officer

Staff Development Program Manager
Staff Development Research Manager
Staff Development (General) Manager

RECOMMENDATIONS

The following recommendations show some of the ways that the findings of this research may be applied to the evaluation and development of job relevant programs and career structures for training and development personnel.

RECOMMENDATIONS FOR EVALUATION AND DESIGN OF PROGRAMS FOR TRAINING AND DEVELOPMENT PERSONNEL

1. Match the job titles in this report to those used in the various programs for training and educating training and development personnel.
2. For each job title and matching training program identify those duties and tasks which do or do not appear in the program.
3. For each job title measure the proportion of student time spent on each task in the training program.
4. Compare the relative percentage of time spent on each task in the workplace and in the training program.
5. Compare the rank ordering of the tasks in the workplace and in the training program.
6. Make judgements on the job relevance of these programs.

RECOMMENDATIONS FOR THE EVALUATION OF JOB SPECIFICATIONS

1. Match the job titles in the report to the existing job titles in an organisation.
2. Identify which duties and tasks are or are not in the organisation's job specifications.
3. Compare the structure of the career ladder in the report with that in the organisation to identify the extent to which it provides a clear path for development of Staff Development personnel.
4. Identify the range of duties and tasks required at each stage of your organisation's career ladder and compare with those in the full report.
5. Make judgements on the job relevance of the job specifications in the organisation.

It is necessary to be aware of two important issues. Firstly, that this research has completed the essential first stage of providing an accurate description of the work which training and development personnel perform. These descriptions can be used in the manner listed above to evaluate the training programs and career structures for training personnel. Secondly, the writer is aware that one cannot derive an OUGHT from an IS. This means that an accurate description of the work which trainers DO , is an important , but not a sufficient guide to the work which they OUGHT to do.

The writer developed and used a second version of the WORK OF TRAINERS TASK INVENTORY which invited respondents to answer the question :

What work SHOULD trainers do ?

The general question was translated into two research questions :

Which duties and tasks are CRITICAL for effective performance in this profession ?

Which duties and tasks are DIFFICULT to perform in this profession ?

This research material has been gathered and after analysis will be used with the time spent data to create a Training Priority Index.

In the meantime members of the profession and other researchers have a wealth of information available for the purposes listed in the recommendations.

BIBLIOGRAPHY

An extensive bibliography is included in :

BURNS, D., JOB PROFILES OF TRAINERS: An Occupational Analysis of Training in Industry, (Presented to National Training Council, Canberra, December 1982)